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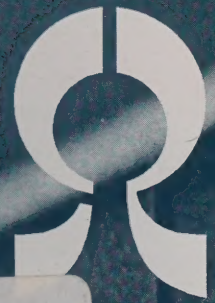


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# the Journal of College Radio

Volume XXIV Number 2 1990-91

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Broadcasting

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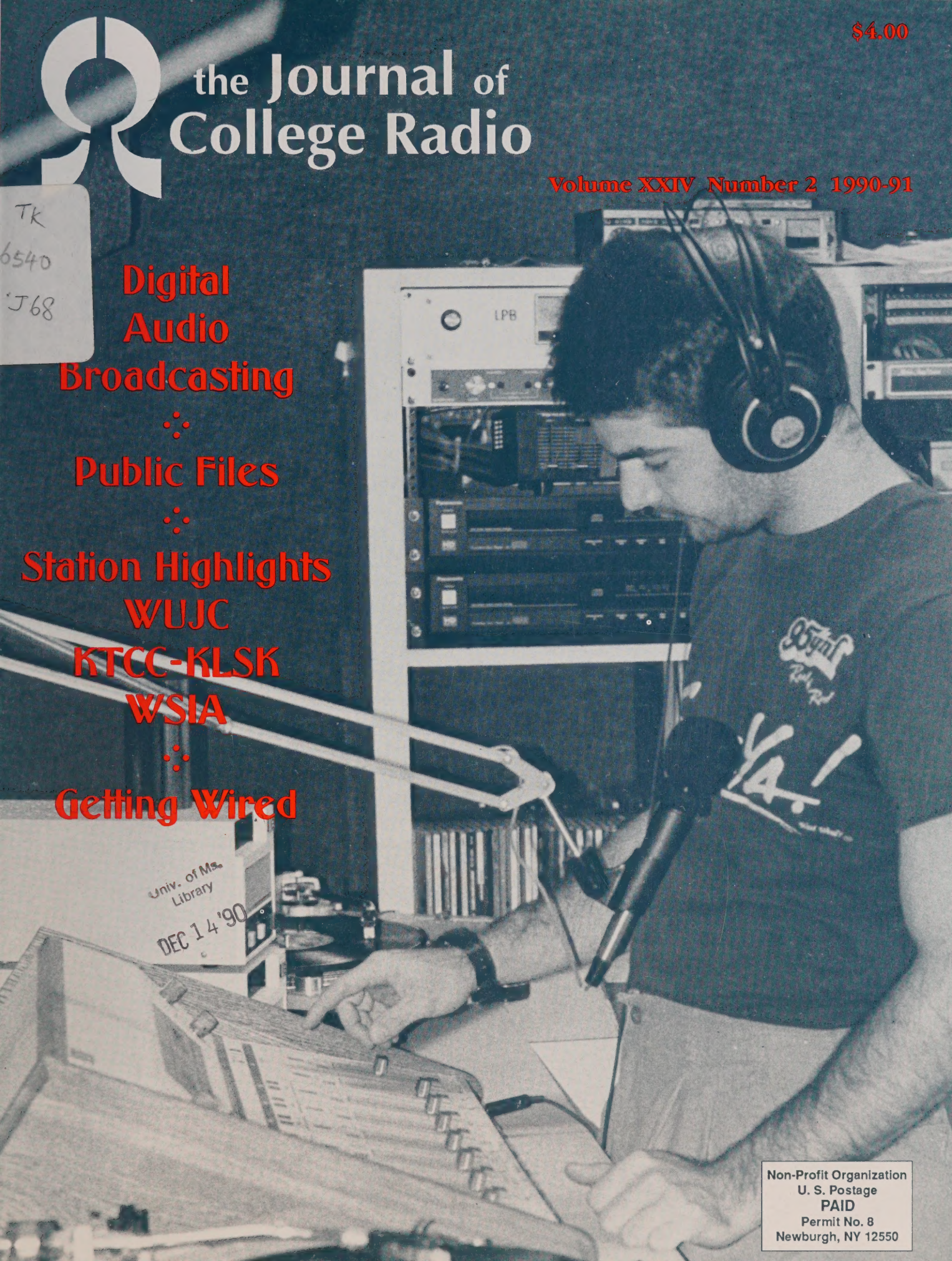
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WSIA

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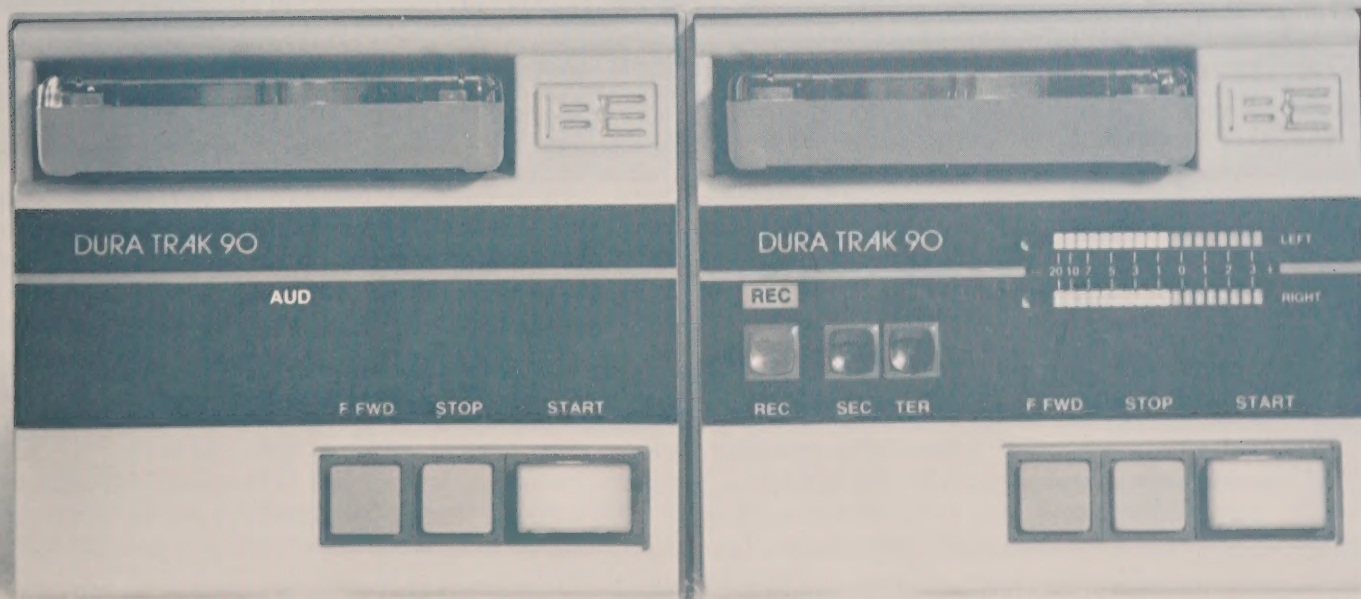
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# the Journal of College Radio

Volume XXIV No. 2  
1990-91

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<b>Cover Photo: Lou Santini, Student Rep., working in WICR's newly renovated studio at Iona College in New Rochelle, NY. WICR's Carrier Current Studio Rule #5,879 states that 'This is a "Live" microphone. In case of Trouble "Yell",'</b>	

*The Journal of College Radio* was founded in 1941 by the Intercollegiate Broadcasting System, Inc. using the title *IBS Bulletin*. The name was changed in 1955 to *IBS Newsletter*. In 1964 it became *College Radio* and in 1969, *the Journal of College Radio* © 1990 IBS.

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I can't remember any recent issue that has grabbed the attention of college radio broadcasters in quite the same way as the FCC's \$35 processing fee for operator licenses.

The new fee took effect in May, while you were knee-deep in term papers and final exams. IBS was the first to notify stations, and some were able to get a last-minute batch of applications processed before the fee was applied. For most stations, however, the full impact didn't hit until September with the influx of new people, all needing operator licenses.

Back in the Spring, IBS filed a *Petition for Reconsideration* and later, a *Motion for Stay*, in an effort to have licenses used exclusively at non-commercial stations made exempt from the fee. We also distributed a waiver and refund request form that could be mailed with FCC applications and fee checks.

IBS and some members of the FCC staff were led to believe that the Commission would act quickly on our *Petition*, but that didn't happen. Meanwhile, without telling anyone, the FCC decided to hold aside applications which arrived with a waiver request attached. They simply cashed the checks but sat on the applications without processing them.

This didn't become a problem until the 60-day term of the temporary licenses started to expire. Applicants were left hanging in the breeze without a valid license, even though they had followed all of the rules and procedures. Since the volume of applications really didn't pick up until September, we received only spotty inquiries from stations about the problem.

When we noticed a pattern developing, IBS contacted the Commission and helped convince them to change their procedures. In the first week of October, they assured us that applications arriving with a waiver request would no longer be delayed in processing and that they would immediately start work to clear the backlog of applications that had been held aside. They also indicated the Commission would address our *Petition for Reconsideration* soon. In fact, it is possible that a decision could be made between the time of the writing and the publication of this article. If that should happen, IBS will notify its member stations immediately.

Had the FCC acted over the Summer, as anticipated, many of the problems would not have occurred. By delaying, they were swamped by the

large rush of new applicants in the Fall.

We still don't know which way they'll decide to go: allow the noncommercial exemption or let the fee stand. IBS believes strongly in the validity of the reasons we've given for the exemption. On the other hand, because of the federal budget crunch, the Congress may find it difficult to give up the revenue represented by this fee. In the meantime, IBS has convinced the FCC to stop their unfair practice of delaying applications just because a waiver was requested.

If you have any questions about the processing of your operator license application and want to talk with an FCC staff person directly, call Kay Hillegass at the FCC's Private Radio Bureau in Gettysburg, PA, (717) 337-1212. To order blank application forms, call the FCC in Washington at (202) 632-7272 and ask for FCC form 753.

### Community Volunteers

With holiday vacations at Thanksgiving, Christmas, the New Year, Semester, and Spring Breaks coming up, the importance of community volunteers working at stations becomes evident.

Without the help of community volunteers, most stations cannot remain on the air during the Summer or during academic vacations and recess periods. Yet, their involvement often remains unappreciated.

The not-too-subtle discrimination starts with their being called "non-students". This negative term does not fairly represent the important contributions they make to stations by their voluntary participation. That's why we prefer "community volunteers".

They can bring a much-needed local perspective to a station whose student staff may be from distant cities and towns and who have little fa-

miliarity or understanding of the local community surrounding the campus – the community to which the station is licensed.

When your campus empties out for holidays or vacations, community volunteers can provide the people to keep it on the air. But, you can't expect them to fill-in when everyone else is gone and then just forget about them when students come back.

If community volunteers are a vital part of your station, you've got to find a way to utilize their participation all year 'round. Balancing that with student participation can be difficult, but priorities can be established.

In some instances, that may mean department head and management positions are held exclu-





# Be Careful ... It could Cost You!

When you're filling-out the FCC Form 753 Restricted Radiotelephone Operator Permit Application, be sure to fill-in *all* of the information requested.

Pay particular attention so that you don't forget to complete the return address on the right side of Part 2 of the form. There are no blank lines there to remind you.

Also, be sure to sign the form on all 3 parts where indicated and include the appropriate dates in Parts 1 and 3.

As some stations have already discovered, a mistake can cost you \$35. An incomplete application may be rejected by the FCC and the application fee will then be forfeited. When there was no fee, this was no problem. Now with a fee, you can lose it all if you're not careful.

The current procedure is to tear off and keep the bottom part of your completed application and mail the two top parts, a separate check for \$35, and our suggested waiver and refund request to:

Federal Communications Commission  
Restricted Permit  
P O Box 358295  
Pittsburgh, PA 15251-5295

That's different than the Gettysburg address shown on the old edition of the FCC application forms. The Commission has not yet printed and distributed revised forms.

Remember to include a separate check for each application – the FCC will not accept a single check covering more than one application, even if everything is together in one envelope.

sively by students. Air slots should be given based on ability, but there are situations where students need to get priority. On the other hand, there may be community volunteers with unique programming skills and interests not found among the student staff.

While we recognize there are cases where school or college rules and policies prohibit their participation, community volunteers can make a real difference in a station's diversity and its ability to serve its listeners on a year 'round basis.

## Convention Reminder

Mark your calendars now: the IBS National Convention is scheduled for March 1-2-3, 1991 at the New York Penta Hotel in New York City. It is traditionally *the* college radio event of the year, so don't miss out. Watch for details and registration forms being sent to your station.

## Program Directory


In response to stations looking for independently-produced programming, IBS is preparing a directory of programs and producers. Based on a detailed questionnaire mailed to hundreds of independent producers, the directory will be a handy compilation of available programming that could fit within your station's schedule. Details are coming soon.

## Computer Programs

If your station uses a computer for program logs, transmitter logs, record, CD and tape library, public service announcements, pledge drives, etc., we'd like to know about it. Other stations are interested in successful programs and in not having to write programs from scratch. Send us a note with the names of the programs you use, what they do, their cost, availability and suppliers. Since we published a story on PC Logger for IBM and compatible machines, there have been a number of requests for log programs for the Macintosh. We'd also be interested to hear about any other radio station programs you're using on either Mac or MS-DOS machines.

## Station Problems

Elsewhere in this issue, there's a story about the problems of WJTB, a carrier-current station in New Jersey. Chances are, you may have faced some of these same or similar problems at your station.

What solutions would you suggest to them? What station problems are you having? Let us know and we can help each other. Write to: Editor, *the Journal of College Radio*, Box 592, Vails Gate, NY 12584. 



**T**he IBS mag is incredibly relevant. Every issue has some article that speaks to some burning problem that we have. WSRN is just now getting back on its feet after a few years of relative neglect, and IBS has been instrumental in this process. Assistance on licensing fee, obscenity/indecency, and other areas of FCC regs has been of utmost importance. Don't stop sending *the Journal of College Radio* — this station will die without it.

Ed Miller  
WSRN-FM Station Manager  
Swarthmore College  
Swarthmore, PA

**I**n one of your most recent issues of *the Journal of College Radio*, you mentioned several computer programs that help college broadcasters keep track of logs, music, etc. Let me take a few moments of your time to describe how our station uses computers. Almost all the programs we run were written either by my predecessor, Todd Wall, or by myself.

We run two IBM PC clones 24 hours a day, 7 days a week, and a third helps out when needed. We run AP NewsDesk on

one, our DJ program on the second, and word processing and album management on the third.

AP NewsDesk has helped our news department greatly. We used to go through about a box of paper a week, costing us between \$60 and \$80 a month! Now, just one box of paper will last us all month long.

The AP computer, as we call it, also runs our Program Log generator. Written from scratch, the program randomly picks PSA's to run, without running the same ones over and over again. It also handles our special shows, like the TDK-CMJ New Music Report, to assure that they appear on the program log. Our Marketing Director also used it to log our underwriting a few weeks ahead of schedule. As if that weren't enough, the program also schedules a weekly EBS test.

Our second computer is the 'star' of our station. It multi-tasks using Double-DOS. Half of the computer runs an AP scanning program, which scans our wires for weather, urgent messages, the latest sports scores, etc. The other half runs our DJ program. It provides our music director with a list of all the songs that have aired over the past year.

The main menu of our DJ program has several options for the busy DJ. To make things easier, our DJ computer runs a Wyse terminal which is located in our on-air studio just to the right of our audio console.

The first option of the DJ program provides access to the AP for weather, sports, and news. The second option is a 'help' database listing information that is vital to station operations. For example, it contains a complete list of DJ names and telephone numbers, information about what to do if the EBS receiver is activated, or if there is a weather emergency occurring in our listening area. All of this is easily accessible to the DJ.

Option three allows the DJ to search our music database for the name of a song or group. For example, if someone calls in on the request line and asks to hear a certain song, the DJ can type in the song title and get a list of the album which the song is on as well as what rotation it is located in.

The fourth and last option on the main menu allows the DJ to record the album which they are going to play. We use a bar scanner and scan the UPC code found on the back of most albums. If we get an album which does not possess a UPC code, our music director will generate one and stick it on the back of the album. Once the DJ scans the album, the terminal will display all of the album's information, including every cut that is allowed for airplay. The DJ then presses a letter which corresponds to the cut they will play and confirms it with the letter Y. Then the song and album are recorded in the master file.

At the end of the week, our music director will run another one of our programs which will tabulate a top 50 count by album and song. These lists are then sent in to the *College Music Journal*.

Another feature of our terminal is the AP link. When the AP flags a story as 'Urgent', the terminal will clear and an alarm will sound. The DJ can then press a key to see the urgent message just seconds after it was received. It is then up to the discretion of the DJ if the message will be aired.

Our third computer is used primarily for word processing, but our music director uses it to record album playlists and run database programs.

We have always been very proud of our programs and computers. If you would like to ask any questions, please feel free to call me Monday, Wednesday, or Fridays between 10:30 a.m. and 12:00 noon Eastern at 919 584-2574. You can leave a message on my voice mail box at 919 584-2142 X 2465 and I will get in touch with you.

Matthew Warner  
WSOE Program Director  
WSOE Manager of Information Systems  
Elon College  
Elon College, North Carolina



# Digital Audio Broadcasting

by Jeff Tellis

**D**igital Audio Broadcasting is on the way and it will mean major changes for all of broadcast radio. (See JCR 24:1). While these changes will not be widely implemented for several years, now is the time to look ahead and plan for the future. IBS has already taken the lead for college radio as a whole, but every local market will face its own specific concerns.

Don't get the impression that Digital Audio Broadcasting is strictly a technical matter for the engineers. The word "digital" has been overused to describe everything from clocks to microwave ovens. It's one of those technical-sounding terms that instantly stops the attention of many non-technical people.

Of course, the foundation of DAB is its innovative engineering, but its effects will be felt world wide by managers and programmers as well.

The reason for the great interest in DAB is its considerable number of advantages. Among the improvements are:

- Significantly improved coverage using significantly less power. DAB will require only 1/100th to 1/1000th of present FM power for comparable, but higher-quality coverage.
- Dramatic improvement in the quality of the signal; compare CD to vinyl.
- More precise coverage control using multiple transmitters similar to cellular phone technology.
- No adjacent channel reception problems. That means more stations can be squeezed into less space.
- On-channel booster capabilities eliminate the need to use separate frequencies to extend the same signal. Again, better coverage using less dial space.
- Easy transmission of auxiliary services including format information, traffic, weather, text and selective messaging services. While we can do some of this now with subcarriers, we'll be able to do more and do it better and easier with DAB.
- Sharing of transmitting facilities by up to 16 stations. This means sharing a common

transmitter and antenna. That means splitting the cost among the stations. However, the "cellular" concept may involve multiple transmitter sites for the same stations to cover larger metro areas. Another effect of this facilities-sharing is that all of the stations would have equal power and coverage from a given transmitter. Consider what this will do for your station and your radio market.

There is also the problem of where to put DAB on the radio dial. While there are some proposals to try to squeeze it into the present FM band, it is more likely that an entirely new band will be designated. That means new receivers for listeners and new transmitters for stations. Some envision a wholesale migration of stations to a new digital band and eventual abandonment of the present AM and FM bands. Others see DAB co-existing with AM and FM. Either way, if you take a look at what FM did to AM and what CD did to vinyl, you'll see that those stations that don't move to DAB will lose. A move to DAB will become necessary for station survival.

Current attention is focused on spectrum availability. There's a debate among engineers about just where the DAB band should go. None of the proposed places is without its drawbacks and current occupants of these bands may be reluctant to give up the space.

Regardless of where the new DAB band is finally located, IBS believes it is absolutely essential to reserve enough space to guarantee all existing noncommercial FM stations an available channel with coverage at least equal to their present service area, to provide for expansion in the form of new stations and the growth and development of existing facilities.

Right now, as you probably know all too well, the noncommercial FM band in most metropolitan and an increasing number of secondary market areas is fully saturated, creating a demand for growth and development that cannot be met. Many closed-circuit, carrier-current, and cable stations would prefer to go FM, but there's simply no room for them. The 20 presently-reserved chan-



nels have proven inadequate to meet the demand for their use.

Noncommercial FM stations account for about 25% of the FM broadcast stations on the air in the United States. Therefore, IBS has proposed to the FCC that at least the same proportion of space in the new DAB band be reserved for the exclusive use of noncommercial broadcast stations.

Guaranteed space reservations for all existing noncommercial stations remains essential whether or not the present FM band remains in use or its present occupants are all eventually shifted to the new DAB band. Most college stations could not afford the costly litigation with competing applicants which would result from anything less than a guaranteed channel reservation. IBS has emphasized in its comments to the FCC, "Survival of the wide range of services uniquely provided by non-commercial broadcasters will depend on this guarantee."

As the FCC sifts through the various proposals for a new DAB band, they are aiming at a month-long World Administrative Radio Conference – WARC – scheduled for February, 1992 in Spain. That's where the spectrum space allocation issues will be decided. A European consortium has already invested millions of dollars in developing a DAB system called Eureka. It was successfully demonstrated this Summer in Canada, creating a lot of interest and excitement. In fact, the Europeans and Canadians appear to be far ahead of the U.S. in their steps to develop and implement DAB.

It is technically possible to distribute DAB signals directly to listeners via satellite, bypassing local stations. Understandably, most existing stations want to see DAB exclusively as a terrestrial, land-based service. Not only do we seek to preserve and protect our role as broadcasters, but also the concept of localism which historically has been fundamental to broadcast regulation.

Localism emphasizes each licensed station's responsibility to serve the needs of its local community, providing a more focused service than national programming. The FCC's required quarterly issues-programs list represents the need for each station to document the more important elements of its local service.

More than likely, a hybrid plan will be approved where a limited number of channels are allocated for direct satellite distribution of national program services while the bulk of the DAB channels will remain land-based for use by local broadcast stations. In any case, the fact that DAB will allow for more signals to reach listeners means they will have more choices and stations will have more competition for listeners' attention.

Another issue under discussion is the regulatory structure. The FCC has asked whether the operator of a common transmission facility should be regulated as a common carrier. IBS and others have said that these operators should be composed of broadcast licensees and regulated as separate broadcasters sharing some common equipment, much as with the shared transmitting antenna systems used today in certain larger markets.

There's also the matter of cost. So far, no one has been willing to estimate the cost to stations for necessary new equipment. If transmitters are to be lower-powered and shared, costs could be lower. But, this could be offset if multiple transmitter sites are used to cover a metro area. Costs of the transmitters and antennas may involve a royalty licensing fee to the developers of the system being used. At this point, no one seems willing to suggest dollar amounts.

A shared transmitter and antenna and a new studio-transmitter link to get your signal to the transmitter site would be the necessary new equipment for starters. That would get your DAB signal on the air. Later, you would probably replace your board and other conventional studio equipment with digital counterparts. Much of this equipment does not yet exist; one reason why no one seems willing to offer cost estimates.

Timing is another difficult element to estimate. Space for DAB will probably be allocated at WARC in 1992. Then, there are the matters of technical standards, equipment design and manufacture. The most complex problem may be the regulation and structure.

For example, those who have paid large sums of money for higher-powered commercial FM stations will not be happy to have all of the stations in their market suddenly of equal coverage. If DAB space is reserved for present AM broadcasters, we'll see the price of AM stations start to climb, not for their present value, but for the future value of a DAB station. AM and FM stations could be put on a level playing field.

Although some see it coming sooner, most seem to believe it will be the end of the 90's before we see DAB implemented in the U.S. on a large scale.

Meanwhile, IBS is continuing to work for your station to secure a reserved spot in the space allocated to a new DAB band.

Noncommercial stations comprise 25% of FM broadcast stations. School, college, and university stations account for 61% of noncommercial FM stations, and IBS stations represent a majority of these. We have suggested to the FCC that an advisory group on DAB be formed to include organi-



zations representing the diverse components of noncommercial broadcasting. IBS has volunteered its participation in this advisory group representing the interests of stations like yours.

The initial FCC *Notice of Inquiry* has been issued and IBS has filed comments, but this is just the opening round. As the Commission narrows the options, we expect there will be added opportunities for your station's input. There may be

some who think DAB is just another FM quad, headed for the same fate of abandonment. We disagree. Given all of the considerable advantages it offers, there is no doubt that DAB is coming. The questions are "When?" and "How?", not "Is it?". We'll continue to keep you informed about DAB developments and IBS will continue to fight for your station's place on the DAB dial.



# ... and You Thought You Had Problems

by Glenn Arbesfeld

W

at WJTB have hit another in a series of brick walls. It is our intent and purpose to resurrect a nearly defunct radio station and return it to functioning order. Unfortunately, we have had to face a series of problems along the way.

For starters, WJTB is a carrier current station based at the New Jersey Institute of Technology, transmitting at 550 AM to the campus residence halls and student center. NJIT is mainly a commuting school, located in downtown Newark. The station has been in existence for over twenty five years now, and our library holds thousands of records, including a large number of jazz records. In fact, if anybody is interested in purchasing any old albums, mainly jazz and country records, please don't hesitate to call. When I say old, I mean old.

So far, we sound like a lot of other carrier-current college radio stations on an urban commuter campus. But things have been going downhill.

Although our listenership has a potential of 7,500, it used to be a lot more. A few years back, our station began to be known around campus as a bunch of party animals. Although we are very much in favor of parties, this attitude did not help the station's relationship with the school. To add to the problem, the station was illegally broadcasting on FM during those party years. In fact,

rumor has it that the FCC came in and dismantled our transmitter, though no one knows exactly for sure.

To make matters worse, WJTB was broken into during the Summer of 1989, and nearly everything was stolen. Fortunately, the thieves left behind our main mixing board, an 8-channel, mono Spotcaster, circa 1973. Even the thieves didn't want it. The lack of equipment was a major set-back for us, and it left us mostly off-the-air for the entire 1989-1990 school year. Our only air time was achieved through much borrowing from friends, other stations, and the school senate. We held out for most of the year in hopes that insurance would cover the stolen equipment. We later learned that NJIT has a policy with a \$5000 deductible. So much for insurance. That left us no choice but to replace some pieces of equipment, turntables, CD player, microphone, etc. using our budget money - roughly \$4000 per year.

While there are many stations that would love to have a \$4000 budget, for us, it's not enough. We are currently looking for a new mixing board to replace the old Spotcaster. However, the boards we have seen cost between \$5,000 and \$8,000. Obviously, we do not have this kind of money to spend. If your station has some slightly used equipment you are willing to part with, please call.

Our current space is actually a rather large area



of about 1,200 square feet. Unfortunately, it is located in the middle of nowhere, in a place that students refer to as the "upstairs dungeon."

Our location is so remote that we must include travel directions for our meetings. Our chance to rejoin humanity came last October. We learned about some space available in the new residence hall being built on campus. We made our pitch and received full backing from the Director of Residence Life, the Student Senate, the Athletic Department, and the Inter-Fraternity-Sorority Council. We even received the support of a few faculty members and deans.

The Residence Life Director reserved a room in the basement for us. The new space allocated to us has about 800 square feet. We jumped at the chance for the better location even if the smaller area would be a big sacrifice.

We drew plans and laid out the space. A big help was the fact that almost half of WJTB's staff members are architecture students. We got the electrical engineering students to design the station wiring layout. Our new station required the construction of five new walls with doorways. The building was under construction, so we did not understand that we would be responsible for the costs in altering the air conditioning, heating, and ventilation. We also forgot to consider the costs for carpeting and sound-proofing. To date, these costs total \$45,000 and the school does not have money allocated for it. Other than that from the Department of Residence Life, it seems our support has evaporated. We are now faced with the prospect of renovating our existing space and remaining in the remote chasm of Campbell Hall.

Apathy is another problem. There is absolutely no school spirit, and it is very difficult to get students to participate in campus activities.

We've thought of fundraising but WJTB is primarily a commuter school in the middle of Newark, an economically depressed area. WJTB does hold an annual spring concert. Our 1989 Rockfest featured Flinch, Laughing Matter, and Spiral Jetty. It was a big disaster. Our 1990 Pub Night featured Laughing Matter, Fear of Falling, and the Fundamentals. This show was an artistic success, but not a financial success. Funding had to come from our severely depleted budget, and ended up costing us over \$1,000.

The year or so that we were off the air did not help our public relations. Many students did not know that a radio station existed at NJIT. We wrote a weekly column in the school paper, *The Vector*, to keep our name alive around campus. We would also DJ at various campus activities. Some of our DJ's do shows for WRNU, the station at Rutgers, Newark, across the street from us. We

would like to publicly thank them for all their help in our attempts to get back on our feet.

We would really like to go FM, but I am willing to bet that our school would not pay for it. More importantly, we are 15 miles from New York City which means there are just no FM frequencies. We have considered cable FM, but until the school gets cable, it is too costly. Residence Life has been trying to get cable for over two years. If they succeed, WJTB will surely go cable FM.

Our school Senate does not want to fund us until we are back on the air. We can't go back on the air until we are funded. Students say they will join the station when we go FM, but we won't be able to go FM if we don't have a large enough staff.

One other major problem involves our telephone lines. Our phones have been inoperable for about two years. Our main studio line and our business phone line both disappeared after the school instituted a campus-wide telephone computer link system. We do have a phone in the engineering room. Unfortunately, it is located on the floor below the station.

While it may be hard to believe, we are trying to be positive. WJTB attracted a dozen new members last year. That's encouraging.

Sometimes, it seems we are starting over.

Glenn Arbesfeld  
General Manager, WJTB  
New Jersey Institute of Technology  
Newark, New Jersey

*Ed. Note: Starting a new station is not easy. Re-starting an old station is even tougher. What advice would you offer?*



**Smiling in spite of their station's problems, back left to right, Steve Casano, Niel McCaffrey, Chief Engineer, Dennis Najar, Music Director, front left to right, Glenn Arbesfeld, General Manager, Maria Bucci, Assistant General Manager, and Earl the Pearl, all of WJTB, NJ Institute of Technology.**



# Public Files

by Jeff Tellis

**S**omeone walks into your station and asks the first staff person they meet to look at your station's public file. What kind of a reaction will they get? A stunned look of disbelief? A scratching of the head and a request to repeat the question? A panic-stricken dash for the faculty advisor's office? A "Sorry, I don't know what you're talking about." Or, would your staff member know exactly what the request meant and how to handle it?

With the cycle of station license renewals now in progress, chances are greater for a visit from the FCC. During such a visit, a look at your public file is a certainty.

Given the scarcity of space on the noncommercial FM band in most metropolitan areas, those interested in putting a new station on the air may look for spots occupied by existing stations. If someone is thinking of opposing or competing with your license renewal, one of their first stops may be at your public file.

Members of the general public are more aware of the power of broadcast media and are more willing to offer their input and criticism; playing a more active role in station licensing and renewal procedures.

All of this means stations must take a closer look at their own operations to make sure station files and records meet FCC requirements. The public file is one of those areas that stations tend to let slide. Chances are, you already have all or most of the materials the FCC requires you keep in the public file, but you may not have assembled them in a single place in a logical order. Not all members of your staff may be aware of the public file itself or about FCC requirements regarding access to the public file by anyone from the general public.

Some station managers have not taken the time to find out about these rules and weren't told about them by the previous station manager. You may not know where to look for the applicable rules, or you may be put off by the legal and technical jargon. So much for the excuses.

The objective of this article is to provide an overview of information about the public file, offer suggestions on implementation, and where to find more information.

You can find detailed information on public files for noncommercial FM stations in Section 73.3527 of the FCC rules and regulations. If you don't have a copy, get one. The official title is the Code of Federal Regulations (CFR), title 47, parts 70-79. The cost is \$18.00. With a credit card, you can order by phone at (202) 783-3238, from 8 a.m. to 4 p.m. eastern time, Monday thru Friday, except holidays. To order by mail, include a check payable to the Superintendent of Documents and address it to: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9371. The FCC itself does not stock copies of the rules for sale so don't waste your time trying to order directly from them.

## **Logs: Not Completely Gone but Sometimes Forgotten**

Until the early 1980's, FCC rules required stations to maintain and retain logs for programming, transmitter operations, and maintenance. Though deregulation eliminated these requirements, most stations continue to keep these logs for their own use. They are helpful to technical people by alerting them to potential equipment problems and helpful to managers compiling the required quarterly Issues - Programs lists.

Stations are still required to log weekly EBS tests, performed and received, and tower light outages and repairs. Logs with these entries must be retained for 2 years.

## **Public File Contents: What You Need**

As FCC rules, regulations, and policies change, the public file content requirements are also subject to change. These are the major items that should be in the public file of a noncommercial, educational FM station:

### **1. A copy of all FCC applications filed after May 13, 1965**

This includes all applications for which local public notice is required. Examples are your original construction permit application, any applications for facilities changes, (including power increases), and applications for license renewals.



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2. A copy of all other FCC applications which involve changes in program service, extension of time in which to complete construction, and assignment or transfer of control of the station.

If any Petitions to Deny have been filed against an application, the public file must contain a statement that such a petition has been filed. The statement must also include the name and address of the person or group filing the petition.

3. A copy of the station's Ownership Reports (FCC Form 323-E) and any contracts which may relate to them.

You are required to file an Ownership Report with each license renewal, and within 30 days of any change in the organization of the licensee, any change in officers or directors of the licensee, or any transactions affecting the ownership, direct or indirect, or voting rights with respect to the licensee. For example, if your station is licensed to the Board of Trustees of your college, you must file a new Ownership Report within 30 days of the appointment of a new trustee, or the resignation or death of an existing trustee.

4. Political file

This includes a copy of all requests for

broadcast time made by or on behalf of candidates for public office, with a notation indicating the station's response to each request and whether or not it was granted. A record of all free time provided to or on behalf of such candidates must also be kept in the public file. These political requests and records must be retained for a period of two years.

5. Annual Employment Report

Keep a copy of every Annual Employment Report filed with the FCC by the licensee for the station. Even though most student-staffed stations have few, if any, paid employees, this Annual Employment Report must be filed. It's usually sent to the licensee automatically by the FCC. Those with fewer than 5 employees, (most of our stations), need complete only certain sections of the report before filing.

6. A copy of the Public and Broadcasting: Revised Edition

This is an all-purpose primer published by the FCC to explain the processes and procedures involved in broadcast applications. It was originally written for the public in an effort to help them provide input in the form of ideas, support, and opposition. Although some of the material may be



out of date, you are required to have this publication in your public file. If you don't have a copy, request one from the FCC's Office of Consumer Assistance, 1919 M St. NW, Washington, DC 20554, or call them at 202 632-7000.

#### **7. Names of donors**

Your public file must contain a list of names of donors who contribute funds, goods, or other consideration to support the station's programming, unless you have entered their names in the station log.

#### **8. Local public notice**

Keep a copy of statements certifying that the station has broadcast the required local public notice renewal pre-filing and post-filing an-

### **The IBS FCC Checklist**

The public file rules are only part of what the FCC says you need to know to keep your station out of trouble. The recommended CFR, Title 47, Parts 70-79, particularly, Part 73, will give you the rest, but not necessarily in a very readable form. If yours is an IBS member station, you may want a copy of the IBS FCC Checklist for noncommercial FM stations. It doesn't take the place of having a copy of the FCC rules, but with the checklist in one hand and the rules in the other, you can check out your station yourself. Call or write: IBS, Box 592, Vails Gate, NY 12584-0592, Phone: 914 565-6710.

nouncements. The statements must be placed in the public file within 7 days of the last announcement broadcast under this requirement and they must include the dates, times, and texts of these announcements.

#### **9. Quarterly Issues – Programs List For stations of 100-watts ERP or more**

Every 3 months, stations need to compile a list of programs that have produced the station's most significant treatment of community issues during the preceding 3 month period. This list must include a brief narrative describing what issues were given significant treatment and the programming that provided this treatment. The program descriptions should include, but are not limited to, the time, date, length and title of each program in which the issue was treated. This list must be

placed in the station's public file by the 10th day following each calendar quarter, (April 10, July 10, October 10, and January 10), and should include the issues and programs for the 3 preceding calendar months. For example, the list to be filed by April 10 would cover the period from January thru March. These issues – programs lists must be kept in the station's public file for the entire license period.

Note: Class D, 10-watt, stations and stations of any power whose programming is wholly "instructional" are exempt from issues – programs list requirements.

#### **Location of the Public File**

FCC rules require the public file to be physically maintained at the main studio of the station or at any public place, such as another office at the school, college, or university, or at a local attorney's office in the community in which the station is licensed. These files must be available for public inspection at any time during regular business hours. Regardless of the file's location, people at the station and at the actual location of the file need to be told about the requirements and procedures for access, content, retention, and copying.

#### **Period of Retention**

The political records and donor lists required must be kept in the public file for a period of 2 years. Construction Permit applications must be kept while they are still pending before the FCC or before the courts. Engineering material relating to a former mode of operation must be retained for 3 years from the time the station begins operation under a new or modified mode. Most other material must be retained in the public file for a period of 7 years. Any material relating to a complaint, FCC investigation, or other legal proceeding must be kept until that proceeding is resolved. A good way to keep track of material is to note on each document both the date it is filed and the date it can or should be removed.

Specific details can be found in 73.3527.

#### **Availability to the Public**

The whole purpose of maintaining a public file is to make it available to members of the public, should they want to see it. This is consistent with your obligations as a public trustee. Any person may ask to see your public file during normal business hours, without an appointment. You are permitted to ask the person's name and address.

#### **Photocopies**

The station must make any material contained



in the public file available for photocopying upon a request made in person, but the requesting party must pay any reasonable costs involved. The station is not required to have a photocopying machine available on its premises, but can specify another location for copies to be made. Copies must be made available within a reasonable amount of time, no more than 7 days, unless there are no reproduction facilities available in the licensee's community; rather unlikely these days. The station is not required to honor requests made by mail for copies, but that choice is yours.

### Security

Certainly, the station must safeguard its own files and should never allow originals of materials from the public file to be taken out of the station by a member of the public. Photocopies should be made by station people who can assure that all original documents stay in the file.

### Get Ready

Most stations rarely experience anyone asking to see their public file. However, FCC rules say you must be ready for just such a request from any member of the public, or from a member of the FCC staff on an inspection visit.

Make sure the contents of your public file are kept up-to-date and that materials which are no longer needed are removed. Let every member of your staff know where the public file is, and how to handle requests to see this material. It should always be available during normal business hours

's Sunday programming at John Carroll University, University Heights, OH, is the backbone of the station. It is called *Ethnic Sunday* and the various shows draw the most listeners and the most contributions.

During the WUJC Radiothon, each show is given a goal of \$100 to be raised. With the ethnic shows, individual checks of up to \$300 are received. These shows are the only source of ethnic music for listeners outside their personal record collections

and their churches and civic groups. Cleveland's great cultural diversity has produced grateful and generous listeners.

The shows include *Sing Shalom*, *Memories from Italy*, *The Armenian Radio Hour*, *Polish Freight and Moving Co.*, *Lithuanian Voice*, and *Festival of India*. They have aired for many years and their hosts are highly respected on-air personalities. ☐



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to someone on duty. Everyone, and especially members of the public when given access to your public file, should be supervised to prevent any documents from being taken. The goal here is to provide both accessibility and security.

Our usual disclaimer applies: this material is presented for informational purposes only. Should you require legal advice, we suggest you consult with competent legal counsel.

Admittedly, there are many more fun things to do at a radio station than getting and keeping your public file in good shape. But, if you don't take the time for these routine housekeeping chores, you could be leaving your station wide-open to serious problems. ☐

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# Getting Wired, Connected, Balanced, and Grounded

by Rich Redmond

**Y**ou are one of the lucky ones if you have had the opportunity to build your college station from the ground up. If not, you are like the majority of college broadcasters who operate a facility that was built 10 or more years ago and which was altered several times since with little documentation. If this describes your college station, you may be getting sub-standard performance from your system. This is often blamed on relatively low power, 10-500 watts, or the fact that it's a carrier current station. Before you write-off your station's problems with "We need a power increase," or "All carrier current stations have a buzz," you should give your station a quick appraisal. How is the station working now? Could station performance be improved?

With much of college radio's emphasis placed on its programming, general upkeep of the station and the learning of how the equipment works are often overlooked. If your station manager and engineer understand a few basic principles and study the station equipment, they can usually develop a better sounding signal.

## **Solid State vs. Tubes**

The first step is to look around your station's main studio. Make sure that all the source gear, *i.e.* carts, tape machines, turntables, etc. use solid state design, not vacuum tubes. If you find that any of your equipment, including your mixing board, uses tubes, you should plan to replace those items first.

## **Microphones**

Some of the most important pieces of source gear are the studio microphones. About 30% of your programming originates from this equipment. All the DJ's use them, yet they are often forgotten when equipment budgets are written. Investment in good microphones, designed for broadcast studio use, should be a top priority. Some microphones used in professional studios include Electro-Voice RE20's and PL10's as well as Sennheiser 421's and Shure SM-7's. You will be

surprised by the difference these microphones will make in the *sound* of your station.

## **Good Connections**

Aside from the equipment in the studio, you should look at the wiring of all the station equipment. Most of the buzzes and hums that are heard in your audio come from poor connections, cold solder joints, and ground loops. The next time you bang on the cassette player because the left channel cuts out, remember, it is probably a bad connection, not the equipment. It is important that you use good-quality connectors. The cheap, plastic RCA plugs available at *Connector World* may seem like a good deal, but their use will cost you more when you have to replace them within five weeks. To solve the problems created by cold solder joints, you must heat the surfaces you want to join and melt the solder on these hot surfaces, not on the soldering iron.

## **Grounding**

Station grounding can be confusing, but understanding it will save you hassles in the long run. The grounding system in the station must be designed to avoid ground loops. A ground loop exists when there are two or more paths to ground from a piece of equipment. Just a small difference in the voltage between two grounding points will cause a signal, typically 60Hz, to be present on the ground wire. This creates hum and noise. Every station should have just one station ground. Every studio in your station should be tied to this single grounding point. Each piece of equipment in a station should be grounded to a single point. This may be either a copper strap on cold water pipe or the ground of the console power supply. There should be a specific station grounding wire, about 12 gauge (speaker wire) running from the chassis of the source gear back to the central grounding point. In addition, the third wire on the AC plug of the source gear should be disconnected. The easiest way to do this is to use a three-to-two prong adapter, available at most electronics and hardware stores.



## Wiring

With grounding under control, you can check the signal wiring, the RCA and XLR plugs. Generally, you will find that your studio was wired with one of two wiring formats. The most common is the single pair cable with a drain wire. When using this wiring format, it is important to be sure that you use uniform color coding. Typically, the red wire is high, black is low, and the bare, drain wire is called the shield. It is important that the red and black wires are not reversed. This will cause a phase problem which will only show up when listening in mono. Phase problems are typically discovered when the mono listener complains that the station sounds quiet, and not very brilliant. The shield wire should be connected only at the console end, to prevent ground loops. A quick way to check for ground loops is to disconnect the main console ground and then connect an ohmmeter between the console ground and the station ground. If there is any reading on the ohmmeter, it shows that there is another path to ground. The hard part is to find the unwanted ground and remove it.

A good point to remember in your cable runs is to make sure you separate the wire runs for different levels of load and use. As a rule of thumb, you should not run AC electric, line level, mic level, speaker audio, or control wiring with each other in the same bundle. Each of these cable runs should be kept separate from the others by a reasonable distance to insure minimum crosstalk. Additionally, it is important to keep all cable connections clean and well dressed. The ends of each cable run should have heat-shrink tubing on the end to cover any loose wires that might make contact with other wires or with ground. This will eliminate one source of shorts and ground loops. It is very important to keep things neat so that inadvertent wiring errors can be quickly spotted. It is also important to keep the station wiring and equipment well documented so that the people who follow you in the station can understand what you did and how you wanted the studio to work.

## On the Levels

So, the wiring seems OK, but things still don't sound so hot. It is important that the levels from all of the equipment in the studio have been aligned to the proper operating range. You should choose a single level to set the output from each device and the main board. Levels of 0dBm or +4dBm are the two most popular levels to use as a standard. The easiest way to adjust the levels is with an alignment tape, alignment record, align-

ment CD, and a Simpson multi-meter used with its AC 2.5 volt scale. This will give you a VU meter to use to set the levels of the source gear and the output of the board. It is important that you never overdrive the output or input of a device since the program will be distorted. Besides using alignment tapes for setting levels, they are used to determine if your tape players and cart players are providing you with the best audio performance they can offer.

Another aspect of level setting is the balance of the left and right channels. If your console has individual gain adjustments for each input, a quick way to make sure they are even is to use a small tone generator, such as the Fostex TT-15. The tone generator is attached first to the left and then to the right channel. The input gain is adjusted until both channels are equal.

## Keep Your Balance

It is important to remember that your audio will sound no better than the worst piece of equipment in your station. In other words, that new CD player that boasts 95dB signal-to-noise ratio will be limited by the mixing board that has only a 50dB signal-to-noise ratio. If you use equipment designed for the general consumer market, *i.e.* cassette decks and CD players, you may find they don't interface well with broadcast-quality equipment. Broadcast equipment was designed to interface with other broadcast equipment. Typically, their inputs and outputs are 600 ohms impedance and balanced. If you are using consumer equipment that has unbalanced inputs/outputs and different impedances, you may be asking for trouble. This does not mean that you can't use consumer gear. You should use an interface box to match both the impedance and balanced-to-unbalanced situation. Interface boxes are currently offered by a number of manufacturers.

If all of this seems somewhat confusing, as it did to me a few years ago when I started in college radio, good sources of help include equipment distributors, manufacturers, and engineers at local commercial stations. These people are usually willing to give some help to a new broadcaster.

These suggestions should get you started. In a future article I would like to look at what happens to your audio signal after it leaves the studio and before it reaches the transmitter. I will be glad to hear from you with comments or questions. ☐

Rich Redmond  
Northeast Broadcast Lab, Inc.  
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# KTCC-KLSK

had very busy summer and fall semester at Colby Community College in Colby, Kansas. A highlight of the summer was the Michael Damian and Lori Ruso concert at the Thomas County Free Fair in August. Student announcers did a remote broadcast from the Fair, giving away concert tickets, T-shirts, CD's, and helium-filled balloons with the station logo on them. Special contest winners were also given backstage passes to meet the stars. The remote broadcasts were a wonderful experience for the station staff.

The radio program at Colby continues to grow. KTCC-KLSK became the first stations in the area to utilize AP NewsDesk. The department will save about \$2,000 annually in the cost of paper and ribbon.

KTCC has a contemporary hit format, so we recently subscribed to Century 21 HitDisc service. This service enables us to get new music even before it hits the charts. Music reps have also been very good about sending us new music when we FAX them our playlists. Colby recently purchased *Killer Tracks*, a CD production library for use in our advanced production classes. The library has increased the quality of the students' production work.

KTCC-KLSK also plans to start broadcasting women's basketball games as well as the men's games with a new Zercom Max-Z remote broadcasting console.

Enrollment in the program is up and we are expecting another fantastic year. We really enjoy receiving *the Journal of College Radio* and happily renewed our IBS membership this year.

Jon Burlew  
Director of Radio Broadcasting  
Colby Community College  
Colby, KS

KTCC-KLSK staff members pose with Michael Damian, *far right*, and Lori Ruso, *center next to eye patch*, after the concert.



KTCC-KLSK Sales Director, Jason Pierson, enjoys a joke with his afternoon listeners.



News Directors Bryan Loker and David Baes with Assistant Traffic Director Linda Wellman examine the new KTCC-KLSK remote broadcasting equipment.



KTCC-KLSK Station Manager, Chris Thompson, demonstrates the new CD production library to Jeremy Hunt.





# Original Radio Series

by Charles Michelson

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# • Magnetic Heads • Refurbish or Replace

By John R. French

**T**ape recorders and players are designed around the operational characteristics of their magnetic recording heads. Often, the effects of normal head wear and minor tape path misalignment result in the tape machine being unable to meet its specifications. Magnetic heads and assembly tape guides on many tape machines are the only non-rotating contact surfaces in the tape path. As tape passes over the heads with enough wrap and tension to insure intimate stable contact, the inevitable result is head wear. In one form or another, head wear is a gradual, long term, and continuous process. Therefore a good maintenance program is essential in preserving optimum performance.

To maintain even and consistent wear from edge to edge, all metal heads manufactured today incorporate edge relief slots, located outside the edge tracks and within the minimum width tolerances of magnetic tape specifications. In both metal and ferrite head design, careful consideration is given to the choice of materials in the critical tape contact area. Equal hardness and abrasive resistance is of major importance to insure even wear characteristics

Head wear is directly related to:

1. Tape passage – in feet
2. Tape tension
3. Tape path cleanliness
4. Tape abrasiveness
5. Environmental conditions – temperature and humidity

As a magnetic head wears in normal operation, certain problems develop indicating a gradual deterioration in performance. On metal heads, see Diagram A, the symptoms are a result of minor changes in contour and tape-to-head contact loss due to wear. These include:

- Signal amplitude instability
- Slight loss of high frequency
- Unstable tracking or tape path

Because of the extreme hardness and composition of the core material, ferrite heads, see Diagram B, do not wear the same way conventional metal core heads do. Slight losses in high frequency response are generally the early indications of core surface and gap deterioration caused

by material erosion.

Variation or change in performance caused by wear is usually very slight and normal EQ and/or minor transport alignment compensation will maintain adequate performance.

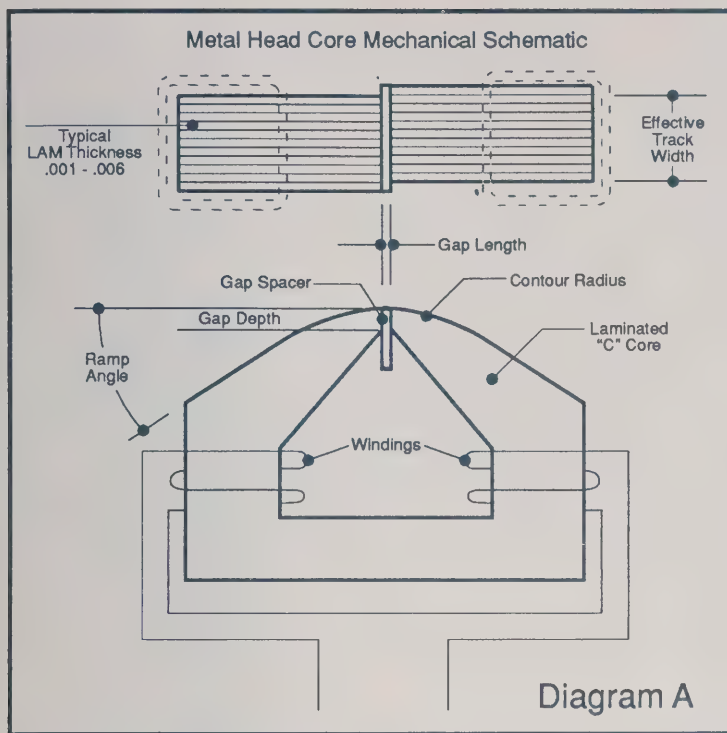
The question is often asked, "When is it time to refurbish or replace tape heads?" As a general rule, heads and assemblies should be refurbished at, or prior to, that point at which maintaining performance specifications is questionable. If wear is allowed to continue, minor problems usually become major ones, and alignment is no longer possible. Major symptoms include:

- Oxide shedding and excessive buildup
- Dropouts
- Loss of high frequency response
- Mid-range bump
- Distortion
- Noise
- Unstable signal and tape path
- Tracking error
- Edge track instability on multi-track heads
- Insufficient erasure

By the time any of these symptoms appear, others are usually there as well, resulting in a serious, overall deterioration in quality. Wide variations exist between tape machines, the materials used in head manufacturing, and the quality of maintenance. Therefore, an expected head life calculation based on hours is very difficult. The data accumulated in our studies does indicate, however, that in most cases magnetic heads failing to meet operational specifications exhibit wear patterns less than 50% of initial tip depth.

Remember that a ferrite record or playback head in serious need of refurbishing will show no obvious wear pattern, groove, or change in contour as metal heads do. Upon inspection of the tape contact area, you will see a matte or dull finish when compared to the high polish on non-contact areas. Under a microscope, the dull finish reveals a surface deterioration and pitting at and around the gap area. This surface breakdown alters the surface gap length and definition (sharpness). Ferrite erase heads are often regarded as indestructible. However a worn erase head is a major source of oxide shedding problems.





cap depth, wear depth and pattern, and initial contour must be performed before and after relapping. It is this information, coupled with documented wear and design data which enables accurate performance and expected life estimates. Considering that the cost of refurbishing ranges between 5% and 25% of replacement, the savings are substantial.

Since a large percentage of head problems stem from tape path and/or initial head misalignment, an important part of the refurbishing procedure includes the precision head mounting and optical alignment of the entire head assembly. The optical alignment procedure is a highly magnified visual and a digital measurement process referencing industry specifications on tape widths, track placement locations, and specific tolerances used by the equipment manufacturers.

The re-installation of a properly refurbished and optically aligned head assembly usually requires only a minor azimuth adjustment (for phase alignment) and the standard electrical calibrations. Tape tension must be checked and adjusted (reduced) to the minimum acceptable setting. The engineering time saved in the studio for mechanical re-installation is substantial.

Often the true rewards of a good maintenance

Performed properly, the procedure of re-lapping restores a magnetic head to its original specifications. Strict adherence is paid to maintaining original contour, ramp angle, gap/crown centering, and end to end crown radius consistency. Zenith or tilt 90° reference to mounting surface, and precision finishing is essential.

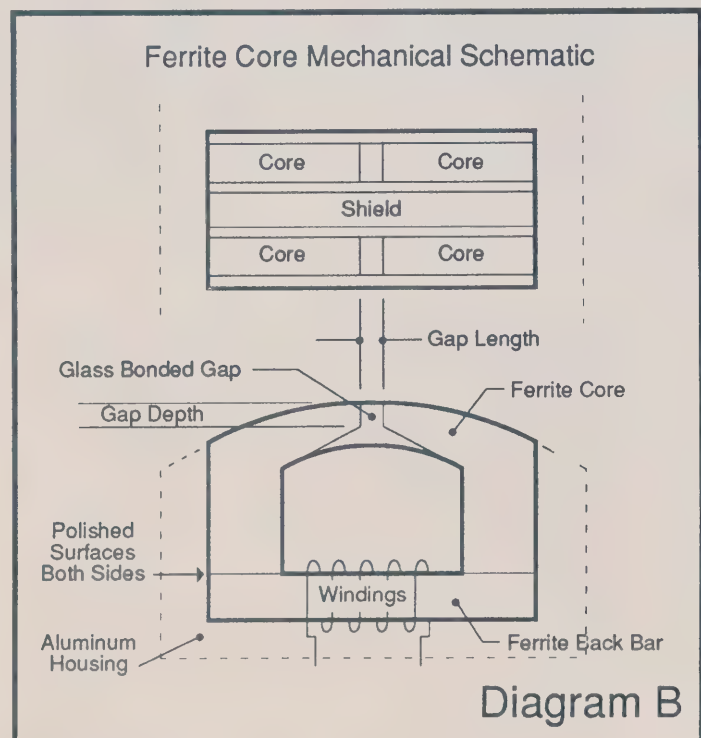
Because of the close relationship between core geometry, head contour, wave length, and EQ design characteristics of the electronics, variations or alterations to the original head contour will usually result in changes to the low end response curve of the tape machine.

The diagrams C1 through C4 illustrate the most common wear patterns found on metal heads. Assuming that the contour is consistent end to end, the widest wear area is always the deepest.

Most uneven wear conditions, as noted in diagrams C1, C3, and C4, are the direct result of tape path problems and/or head misalignment. Generally, metal heads will usually wear slightly deeper at the edges, due to tape tension and cural effect of magnetic tape. See diagram C2.

There are countless combinations which can include any or all of these wear patterns within a single head. The longer a head is allowed to wear unevenly, the more material or usable life is sacrificed in refurbishing to correct the condition.

Electrical and mechanical analysis, consisting of inductance, DC resistance, Q, measured





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program can be overlooked in the day to day activities of a radio station. Equipment down time, maintenance under emergency conditions, pressure and fatigue, quality and the bottom line (money) are all affected by the level of periodic maintenance performed. Awareness and the appropriate attention paid to the conditions of your

magnetic heads will greatly reduce the chances for those sudden surprises. ☐

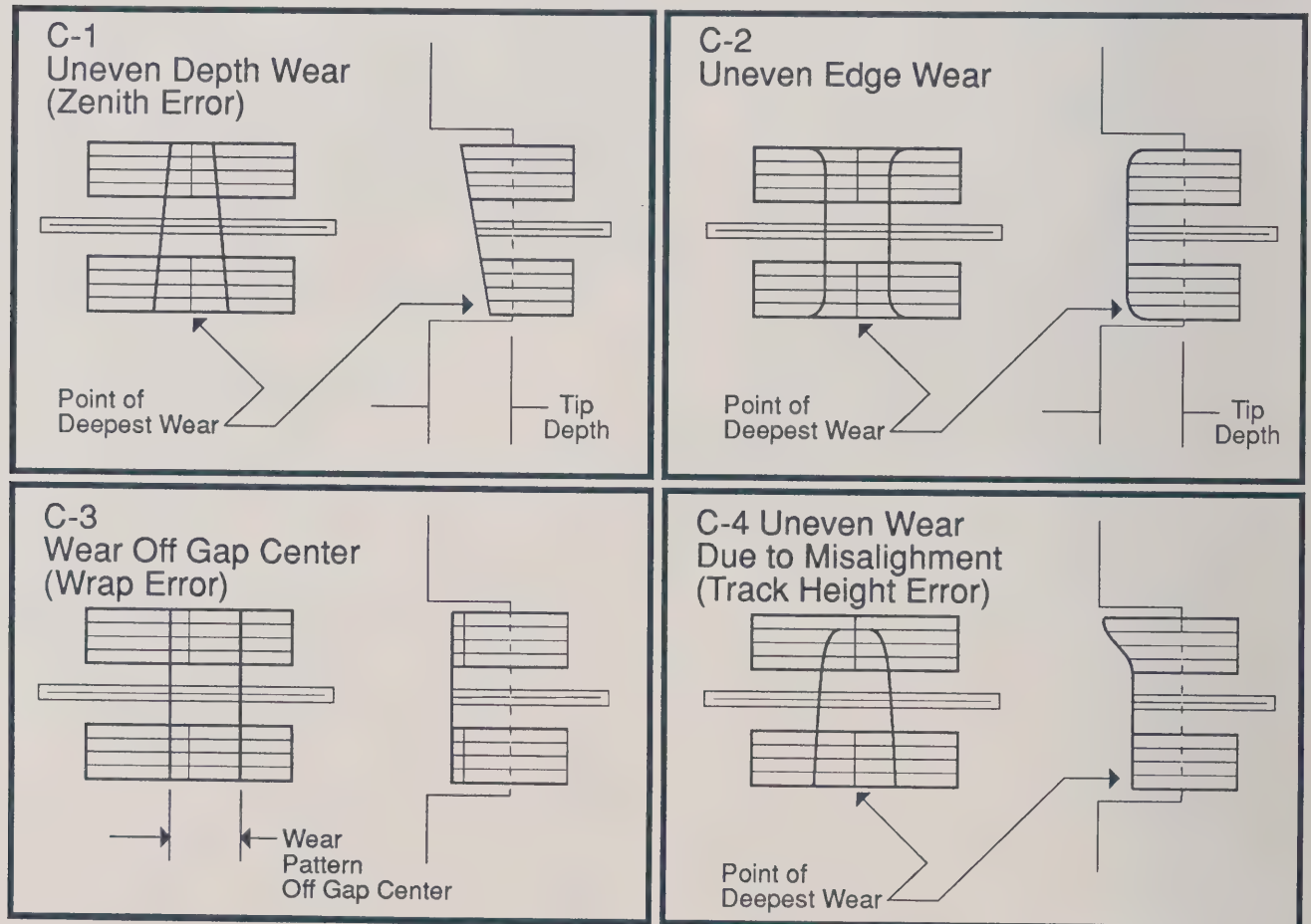
John R. French, President

JRF, Magnetic Sciences, Inc.

P O Box 121, 249 Kennedy Road

Greendell, NJ 07839

201 579-5773



Diagrams C



# WSIA

is the only FM radio station on Staten

Island, the smallest borough in New York City with a population of a half million people. The station is based at the College of Staten Island which is part of the City University of New York and has a full time General Manager, Greg Adamo, a part-time Engineer, and a student volunteer staff of more than 80.

Though the station's power is only 10 watts, it can be heard in parts of Brooklyn, Queens, lower Manhattan, and the New York Bay area of New Jersey with a potential audience of two and a half million.

WSIA's unique format includes a mix of Rock, Familiar, Unfamiliar, and Cultural Diversity which includes Jazz, Blues, Folk, World, and Reggae. The music is mixed with local news, sports talk shows, and live, local sports coverage.

WSIA bills itself as Gorilla Radio, broadcasting from beneath the earth, transmitting from atop the largest landfill in the world, and serving the toxic jungle.



**Bud Watson, left, and Andy DeNardo, Sports Director, flank the WSIA Gorilla at a Job Fair remote in Staten Island Mall.**



**Marie McGurry at the WSIA news mike.**



**Frank "Squid" Devine, Music Dir., left, and Anthony Brown, Promos.**



**Jimmy Concon, Underwriting Dir. in the Production Studio.**



**Frank 'Squid' Devine working on the music files.**



**Mike Silva, Music Director in the On-Air studio.**



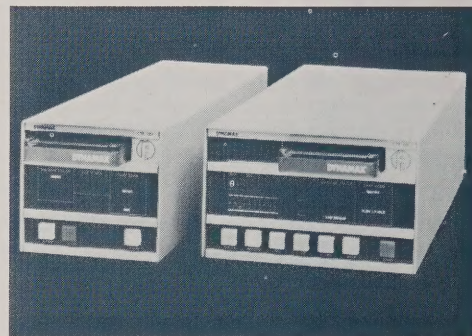
**Andy DeNardo, left, Brian Wright, Engineering Dir. center, and Anthony Brown, Promo. Dir. in On-Air studio.**

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